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CURRENT REVIEW ON PHARMACOLOGICAL ACTIVITIES OF *CITRULLUS COLOCYNTHIS* (FRUIT, ROOT & SEED)

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ABSTRACT

Citrullus colocynthis (L.) Schrad (*C. colocynthis*), often known as Colocynth, is a wild species of the Cucurbitaceae family. The goal of today's research is to look at the phytochemical composition, pharmacological properties, cytotoxicity, and antioxidant activity of various plant elements. Traditional remedies have a higher level of interest as a result of increased health awareness and knowledge of the side effects of synthetic capsules. Medicinal plants provide remedies for a wide range of ailments, as well as basic to advanced living requirements. This has increased demand for herb-based medications by bringing ethnomedicinal studies into the forefront. *Citrullus colocynthis* is an herbaceous plant that contains a variety of nutrients that are important for overall health. in which the anti-diabetic activity is exceptional It appears that more research is needed to evaluate these findings.

Keywords: - *Citrullus colocynthis*, health aspects, traditional uses, herbal medicine

INTRODUCTION

PLANT PROFILE:

Synonyms: *Colocynthis vulgaris* Schrad., *Cucumis colocynthis* L. (basionym), *Citrullus pseudocolocynthis* M.Roem. and *Colocynthis officinalis* Schrad(414-2) [1].

Common names: - Arabic: handhal, English: bitter-apple, bitter-cucumber, colocynth, vine-of-Sodom, wild gourd, French: coloquinte, coloquinte, German: bitter-melone, koloquinte, India: tumba, Portuguese: colocíntida, Spanish: alhandal, coloquíntida, Swidish: kolokvint [2, 3].

Plants are often regarded as the most important resources for human medication and food, and organic molecules derived from flora have less side effects than chemical drugs. *Citrullus colocynthis* is a part of the Cucurbitaceae botanical family. It has been given the names coloquinte (French), bitter gourd, bitter apple, bitter cucumber (English), and Koloquinthe (German). Its alternate names all relate to the plant's bitterness. The sour taste of this plant is due to colocynthine, which is a crucial element. *Citrullus colocynthis* is a medicinal plant that is used alone or in combination for medicinal purposes in traditional medicine. The plant's root, leaf, pulp, and seed all have medicinal properties. The pulp of the fruit is the most useful in this regard. *Citrullus colocynthis* is found in Africa and Asia, including Iran's southeast, east, and southwest areas. Because of the importance of *Citrullus colocynthis* dietary and therapeutic properties, this study was carried out to investigate new evidence relating to *Citrullus colocynthis* pharmacological activities [4, 5].

BOTANICAL DISCRPTION: -

C. colocynthis is a perennial plant with perpetual roots and angular, hard, rough, vine-like stems that extend out from the ground and can climb up. At the leaf axils, they develop a single yellow flower. They're monocious, with lengthy peduncles and a tuberous rootstock that produces trailing or hiking stems [3].

Roots and stem	Perennial roots, stems are angular, tough, and rough vine-like that spread on the ground and may climb up.
Seeds	Yellow to brown in color, smooth in texture, and oval in shape.
Flowers	A single yellow color flower at leaf axils. They are monoecious and have long peduncles.
Fruit	Angular and about 5-10 cm long. They are triangular, rough, and green

CHEMICAL COMPOSITION: -

The quantity of nutrients in plants must be determined in order to properly analyse their effects on humans. The chemical components of *Citrullus colocynthis* (L.) are mostly glycosides, which can be proteolytic enzymes hydrolyzed to create dihydroelatericin B (cucurbitacin L), elatericin B (cucurbitacin I), and elaterin (cucurbitacin E). Extracts of Caffeic acid, chlorogenic acid, and cucurbitacin E-, J-, and L-glucosides are also included. Quercetin extracts another combination from *Citrullus colocynthis*. *Citrullus colocynthis* was also found to contain phenolic acids, flavonoids, fatty acids, tocopherols, and alkaloids [6].

TRADITIONAL USES: -

For hundreds of years, it has been widely utilized in traditional medicine. The colocynth has a variety of uses in traditional Arabian medicine, including as a laxative, diuretic, and treatment for insect stings. Colocynth powder was occasionally mixed with aloes, unguents, or bandages and applied externally. Troches made from colocynth were once known as "troches of alhandal" and they were used as an emetic. Colocynth sap was once used to treat camel skin outbreaks in ancient Arab veterinary medicine [7].

MEDICINAL PROPERTIES: -

Citrullus colocynthis is a fruit with an abundance of essential nutrients that can be used in medicine formulations to improve health and prevent nutritional deficiencies, according to several studies. *Citrullus colocynthis* has pharmacological capabilities as a result of its abundance of bioactive chemicals, which may help in the treatment of diseased conditions. These bioactive compounds have anti-inflammatory, anti-diabetic, anti-microbial, anti-bacterial, anti-carcinogenic, anti-ulcerogenic, hypolipidemic, hypoglycemia, and anti-oxidant properties, as well as hypolipidemic and hypoglycemic properties [8].

PHARMACOLOGICAL ACTIVITY: -

The species contains antidiabetic, antioxidant, anti-inflammatory, and analgesic properties, as well as anti-cancer and gastrointestinal effects.

ANTIDIBETIC:

Diabetes mellitus is one of the most well-known endocrine disorders in the world, according to current research. *Citrullus colocynthis* (*C. colocynthis*) is one of the most commonly used traditional plants to treat diabetes. It is well-known for its hypoglycemic effect, which is supported by current phytotherapy. Its undesirable consequences include gastrointestinal and urinary tract disturbances. This review article covers a wide range of blood glucose-lowering

studies that have been conducted to date. Roots, fruits, seeds, rinds, and leaves were among the flower parts used in extract management [9].

ANTIOXIDANT: -

The presence of massive amounts of phenolics and flavonoids was discovered during an initial phytochemical screening of the plant. Following that, in step with 100 g of fresh mass, quantification reported the existence of 0.74 percent (m/m) phenolics (calculated as gallic acid) and 0.13 percent (m/m) flavonoids (calculated as catechin equivalents) [10].

ANTI-INFLAMMATORY AND ANALGESIC: -

At various doses, all extracts showed essential analgesic and anti-inflammatory activities without producing any side effects. *Citrullus colocynthis* immature fruit and seed extracts were found to have analgesic and anti-inflammatory activities in this examination. The findings of the tests provide clinical insight on the use of *Citrullus colocynthis* Schrad. as an analgesic and anti-inflammatory agent in the history [11].

ANTICANCER EFFECT: -

In human breast cancer cell growth, the antiproliferative impact of cucurbitacin glycosides derived from *Citrullus colocynthis* leaves was studied. Cucurbitacin B/E glycosides were extracted from the leaves and separated from the extract [12].

GASTROINTESTINAL EFFECT: -

The anti-ulcerogenic activity of the *Citrullus colocynthis* seed methanolic extract was evaluated in Wistar albino rats using a pyloric ligation induced ulcers model. At a dose of 200 mg/kg, *Citrullus colocynthis* (200 mg/kg) demonstrated the maximum inhibition of gastric volume 1.680.18, free acid 39.863.86, and total acidity 61.231.87. At a dose of 200 mg/kg, the extract's greatest percent reduction of ulcerogenicity in a pyloric ligation model was 71.57 percent [5].

CONCLUSION

Citrullus colocynthis is reported as having anti-diabetic, antioxidant, anti-inflammatory, profibrinolytic, analgesic, anti-allergic, and anti-microbial properties in this overview article, although anti-diabetic activity is the most significant. It could also have an impact on the reproductive system and fertility. It appears that more study is needed to investigate the mechanism of this action.

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